

Section 3.3.1 of the Cumulative Effects Analysis (p. 19) is vague on key aspects of the impacts that will occur to ground water quality in the ore zone. The second-to-last sentence of this section say that the company "will monitor groundwater using standard industry practices." This is repeated in the section on post-restoration monitoring (p. 22). These standard practices, of course, have been associated with all sorts of problems, including the ongoing failure to return even one ISL mine's water to baseline. The EPA can do better.

Similarly, the section ends with a statement that the EPA "concludes that impacts to ore zone water...should be minimal." How is "minimal" defined? Is it what the EPA will allow? Is it minimal to the company? Or is it minimal to the impacted communities? This term should receive better explanation.

Response:

EPA does not regulate the ISR wellfield groundwater restoration process or groundwater quality within the Inyan Kara ore zones because these areas are exempted based on the presence of commercially producible uranium ore. The NRC license requires Powertech to conduct groundwater restoration within the wellfield injection zone consistent with NRC license requirements described in Section 6.1.3 of the NRC Safety Evaluation Report and Section 2.1.1.1.4 of the SEIS. Powertech has not proposed a schedule for the monitoring frequency during groundwater restoration. As stated in Section 6.1.3.5 of the NRC Safety Evaluation Report, during active aquifer restoration, each wellfield will be monitored on a frequency sufficient to determine the success of aquifer restoration, optimize the efficiency of aquifer restoration, and determine if any areas of the wellfield need additional attention. Based on this information, EPA stated in Section 3.3.1 of the CEA that Powertech will monitor groundwater using standard industry practices to determine the progression and effectiveness of restoration. EPA has determined the description of the groundwater restoration monitoring frequency is accurate. Furthermore, it is the groundwater restoration method, rather than groundwater restoration monitoring frequency, that affects the final concentrations of ISR contaminants in the ore-bearing areas at the completion of groundwater restoration. EPA did not change Section 3.3.1 of the CEA document based on this comment.

As the commenter stated, groundwater restoration in uranium ISR wellfields has not resulted in concentrations of all ISR contaminant concentrations being returned to pre-operational concentrations. If ISR concentrations are not able to be restored to pre-mining concentrations or EPA MCLs, as applicable, Powertech must apply to the NRC for approval of a License amendment to set Alternative Concentration Limits, or ACLs, as the approved target restoration concentrations for the ISR contaminants not able to be restored to pre-operational concentrations or EPA MCLs, if applicable.

The list of potential ISR contaminants is included in NRC SEIS Table 7.3-1 Background WQ Parameters and Indicators for Operational Groundwater Monitoring and NRC Safety Evaluation Report NRC SER Table 5.7-2: List of Baseline Parameters. The constituents in these tables are included in Table 7 of the EPA CEA. Based on a review of constituents at different ISR wellfields in Texas, Wyoming and Nebraska, the constituents for which pre-operational concentrations were not able to be reached include total dissolved solids, arsenic, boron, cadmium, calcium, fluoride, iron, lead, magnesium, manganese, mercury, potassium, selenium, uranium, radium-226, vanadium and zinc (Cameco Resources, 2018; Hall, 2009; Neupauer, 2010). However, some ISR wellfields showed that groundwater concentrations of arsenic, cadmium, fluoride, lead, mercury, and Radium-226 decreased compared to pre-operational concentrations (Hall, 2009). The ISR contaminants for which ACLs may be required in ISR wellfield groundwater depends on the trace minerals present in the ore deposit, the mineralogy of the aquifer unit before ore deposition occurred and aquifer properties such as porosity and permeability. The metals identified in Dewey-Burdock uranium ore deposits, besides uranium, include vanadium, selenium, molybdenum, iron, calcium and radium-226 (2015 PEA). Based on this list, impacts to the ore zone groundwater at the Dewey-Burdock Project Site may include concentrations of these constituents elevated above pre-operational concentrations. The pre-operational groundwater quality within Inyan Kara ore zones already includes elevated concentrations of total dissolved solids, sulfate, iron, manganese, gross alpha, radium-226, radon and, in some locations, uranium. There will be no impacts to the suitability of this groundwater for use as a source of drinking water. However, there will be small, but presently unknown, impacts from increased concentrations of ISR contaminants for which ACLs are approved by NRC. Therefore, the EPA concludes that ISR

impacts to ore zone ground water quality after completion of groundwater restoration should be minimal compared to the pre-operational groundwater quality. The CEA discusses the Class III Area Permit requirements that no ISR contaminants may cross the aquifer exemption boundary into the USDW; therefore, there will be no impacts to users of Inyan Kara groundwater outside the aquifer exemption boundary. EPA has updated the CEA to include the information on the specific metals occurring in the Inyan Kara ore zone groundwater in order to clarify the ISR contaminants that may be present in concentrations above pre-operational levels after groundwater restoration.